

### **Submission of Manuscripts**

All manuscripts should be submitted online at: <http://www.edmgr.com/aeroj>  
Any enquiries should be directed to Wayne J Davis at [aerjournal@aerosociety.com](mailto:aerjournal@aerosociety.com).  
The current set of instructions for authors are available at: <http://journals.cambridge.org/AER>

### **Subscriptions**

*The Aeronautical Journal* (ISSN 0001-9240) is published monthly in 12 issues each year.

### **Non-Members**

The subscription price (excluding VAT) to *The Aeronautical Journal* for volume 125 (2021), which includes print and electronic access, is £672 (USA, Canada and Mexico US\$1,006) and includes delivery by air; single parts are available at £64 (USA, Canada and Mexico US\$96) plus postage. The electronic-only price available to institutional subscribers is £588 (USA, Canada and Mexico US\$882). EU subscribers (outside the UK) who are not registered for VAT should add VAT at their country's rate. VAT registered subscribers should provide their VAT registration number. Orders, which must be accompanied by payment, may be sent to any bookseller or subscription agent or direct to the publishers: Cambridge University Press, University Printing House, Shaftesbury Road, Cambridge CB2 8BS, or in the USA, Canada, and Mexico to Cambridge University Press, Journals Fulfillment Department, 1 Liberty Plaza, Floor 20, New York, NY 10006, USA. Japanese Prices for institutions are available from Kinokuniya Company Ltd, P.O. Box 55, Chitose, Tokyo, Japan.

### **RAeS Conference Proceedings**

Details, prices and availability of Royal Aeronautical Society Conference Proceedings can be obtained from: RAeS Conference and Events Department, No.4 Hamilton Place, London, W1J 7BQ, UK.  
Tel: +44 (0)20 7670 4345, email: [conference@aerosociety.com](mailto:conference@aerosociety.com) or via [www.aerosociety.com/events/catch-up-on-events/conference-proceedings](http://www.aerosociety.com/events/catch-up-on-events/conference-proceedings)

### **Advertising**

All advertising enquiries should be sent to Neeral Patel  
[partners@aerosociety.com](mailto:partners@aerosociety.com)

### **Internet Access**

*The Aeronautical Journal* is included in the Cambridge Journals Online service and can be found at:  
<http://journals.cambridge.org/AER>.

*The Aeronautical Journal* now supports open access publications across its hardcopy and online platforms, and accepts papers to consider for publication under both the 'green' and 'gold' open access options.

Information contained within *The Aeronautical Journal* has been published in good faith and the opinions expressed do not represent those of the Royal Aeronautical Society.

The Royal Aeronautical Society is a registered charity: No 313708

© 2021 Royal Aeronautical Society

All rights reserved. No part of this publication may be reproduced in any form or by any means, electronic, photocopying or otherwise, without permission in writing from Cambridge University Press. Permission to copy (for users in the USA) is available from the Copyright Clearance Center, <http://www.copyright.com>.

This journal issue has been printed on FSC™-certified paper and cover board. FSC is an independent, non-governmental, not-for-profit organization established to promote the responsible management of the world's forests. Please see [www.fsc.org](http://www.fsc.org) for information.

Printed in Great Britain by Bell & Bain Ltd, Glasgow.



# CONTENTS

Volume 125 Number 1294

December 2021

<b>Interaction effects on the conversion corridor of tiltrotor aircraft</b> W. Appleton, A. Filippone and N. Bojdo	2065
<b>Design and development of a backstepping controller autopilot for fixed-wing UAVs</b> D. Sartori, F. Quagliotti, M.J. Rutherford and K.P. Valavanis	2087
<b>Realisation and testing of novel fully articulated bird-inspired flapping wings for efficient and agile UAVs</b> D. Kumar, T. Goyal, S. Kamle, P.M. Mohite and E.M. Lau	2114
<b>Analysis of bird situation around airports using avian radar</b> W.S. Chen, Y.F. Huang, X.F. Lu and J. Zhang	2149
<b>Towards a new design with generic modeling and adaptive control of a transformable quadrotor</b> S.H. Derrouaoui, Y. Bouzid and M. Guiatni	2169
<b>Numerical and experimental testing of aircraft tyre impact during landing</b> Y. Gan, X. Fang, X. Wei and H. Nie	2200
<b>Lateral directional aircraft aerodynamic parameter estimation using adaptive stochastic nonlinear filter</b> M. Mohamed and N. Joy	2217

*Front Cover:* The HMS Queen Elizabeth welcomes a MV-22B Osprey tiltrotor aircraft aboard.  
(Royal Navy/Crown copyright)

Cambridge Core

For further information about this journal please go  
to the journal website at:  
[cambridge.org/aer](https://doi.org/10.1017/aer.2021.103)



MIX  
Paper from  
responsible sources  
FSC® C007785

CAMBRIDGE  
UNIVERSITY PRESS